CLAIMS APPENDIX

11. A static mixer comprising:

precision cast static mixer elements (1) arranged along a central axis (10), each precision cast static mixer element having a circumferential reinforcement region (4);

intermediate elements (2) abutting the circumferential reinforcement region (4) and forming in combination with the precision cast static mixer elements a static mixer body of a preselected length with a periphery defined by the reinforcement region and the intermediate elements; and

joints between the reinforcement region (4) and the intermediate elements (2) defining first and second continuous joint surfaces (40a, 40b and 20a, 20b) and mutually defining a seal formed between the first and second continuous joint surfaces between the reinforcement regions (4) and the intermediate elements (2);

a first continuous joint surface defining at least one cut-out having an upwardly extending cavity;

a second continuous joint surface supporting a protrusion for extending into the at least one cut-out of the first continuous joint surface for positioning the reinforcement region and the intermediate elements at the seal of the first and second continuous joint surfaces with respect to each other;

the first continuous joint surface defining the at least one cut-out having an upwardly extending cavity of sufficient dimension for receiving the protrusion supported on the second continuous surface without obstruction within the cavity while permitting the first and second continuous joint surfaces to define the seal,

whereby the first continuous joint surface defines an unobstructed planar surface to enable machining access for adjusting the length of the static mixer.

12. The static mixer of claim 11 wherein:

the reinforcement regions (4) of the precision cast static mixer elements (1) are ring-shaped;

the reinforcement regions (4) have the first continuous joint surface defining cut-outs (41, 41', 42, 42') configured in the reinforcement regions (4); and

the second continuous joint surface supports the protrusion (21, 21', 22, 22', 23) from the continuous joint locations (20a, 20b) of at least one intermediate element (2), the projecting part having a shape complementary to a shape of the cut-outs.

13. The static mixer of claim 12 wherein:

at least some of the protrusions are separate parts (23) fitted into cut-outs (25) in the intermediate elements (2).

14. The static mixer of claim 11 further including:

a longitudinally slit cylinder (5) of resiliently elastic sheet metal lamina holding the precision cast static mixer elements (1) at the reinforcement region (4) and the intermediate element (2) together.

15. The static mixer of claim 11 and wherein:

the precision cast static mixer elements (1) each comprise a gridwork (3) of webs (31) which are arranged in layers oriented parallel to the central axis (10) with the webs of adjacent layers crossing one another.

16. The static mixer of claim 15 and wherein:

the webs of adjacent layers cross one another and enclose angles between 10° and 70°.

17. The static mixer of claim 11 and wherein:

the precision cast static mixer elements (1) are manufactured from the group consisting of a metallic alloy, a ceramic material, and a plastic.

18. The static mixer of claim 15 and wherein:

the gridwork (3) of webs (31) is co-cast with the reinforcement regions (4).

19. The static mixer of claim 12 wherein:

first cut-outs (41, 41') are configured on one side of the reinforcement regions (4); and

second cut-outs (42, 42') are configured on the other side of the reinforcement regions (4) and displaced 90° from the first cut-outs (41, 41').

SUPPLEMENTAL CLAIMS APPENDIX CONTAINING MATERIAL REJECTED AS NEW MATTER

(Rejected new matter appears in underline format and is not now contained in the appealed claims)

11. A static mixer comprising:

precision cast static mixer elements (1) arranged along a central axis (10), each precision cast static mixer element having a circumferential reinforcement region (4);

intermediate elements (2) abutting the circumferential reinforcement region (4) and forming in combination with the precision cast static mixer elements a static mixer body of a preselected length with a periphery defined by the reinforcement region and the intermediate elements; and

joints between the reinforcement region (4) and the intermediate elements (2) defining first and second continuous joint surfaces (40a, 40b and 20a, 20b) and mutually defining a seal formed between the first and second continuous joint surfaces between the reinforcement regions (4) and the intermediate elements (2);

a first continuous entirely planar, circumferential joint surface defining at least one cut-out having an upwardly extending cavity;

a second continuous entirely planar, circumferential joint surface supporting a protrusion for extending into the at least one cut-out of the first continuous entirely planar, circumferential joint surface for positioning the reinforcement region and the intermediate elements at the seal of the first and second continuous entirely planar, circumferential joint surfaces with respect to each other;

the first continuous entirely planar, circumferential joint surface defining the at least one cut-out having an upwardly extending cavity of sufficient dimension for receiving the protrusion supported on the second continuous entirely planar, circumferential surface without obstruction within the cavity while permitting the first and second continuous entirely planar, circumferential joint surfaces to define the seal,

whereby the first continuous entirely planar, circumferential joint surface defines an unobstructed planar surface to enable machining access for adjusting the length of the static mixer.

12. The static mixer of claim 11 wherein:

the reinforcement regions (4) of the precision cast static mixer elements (1) are ring-shaped;

the reinforcement regions (4) have the first entirely planar, circumferential continuous joint surface defining cut-outs (41, 41', 42, 42') configured in the reinforcement regions (4); and

the second continuous entirely planar, circumferential joint surface supporting the protrusion (21, 21', 22, 22', 23) from the continuous joint locations (20a, 20b) of at least one intermediate element (2), the projecting part having a shape complementary to a shape of the cut-outs.

13. The static mixer of claim 12 wherein:

at least some of the protrusions are separate parts (23) fitted into cut-outs (25) in the intermediate elements (2).

14. The static mixer of claim 11 further including:

a longitudinally slit cylinder (5) of resiliently elastic sheet metal lamina holding the precision cast static mixer elements (1) at the reinforcement region (4) and the intermediate element (2) together.

15. The static mixer of claim 11 and wherein:

the precision cast static mixer elements (1) each comprise a gridwork (3) of webs (31) which are arranged in layers oriented parallel to the central axis (10) with the webs of adjacent layers crossing one another.

16. The static mixer of claim 15 and wherein:

the webs of adjacent layers cross one another and enclose angles between 10° and 70°.

17. The static mixer of claim 11 and wherein:

the precision cast static mixer elements (1) are manufactured from the group consisting of a metallic alloy, a ceramic material, and a plastic.

18. The static mixer of claim 15 and wherein:

the gridwork (3) of webs (31) is co-cast with the reinforcement regions (4).

19. The static mixer of claim 12 wherein:

first cut-outs (41, 41') are configured on one side of the reinforcement regions (4); and

second cut-outs (42, 42') are configured on the other side of the reinforcement regions (4) and displaced 90° from the first cut-outs (41, 41').